

Message Text

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SUBJECT: US/WESTERN EUROPEAN SCIENTIFIC AND
TECHNICAL EXCHANGES

REF: (A)STATE 67701, (B)USNATO 2080, (C)USNATO 2473

SUMMARY: WE SHARE CONCERN EXPRESSED IN REF A THAT
DECLINE IN SCIENTIFIC EXCHANGES WILL ADVERSELY
AFFECT US/WESTERN EUROPEAN SCIENTIFIC RELATIONS. SINCE
ITS ESTABLISHMENT IN 1958, THE NATO SCIENCE COMMITTEE
HAS ACCOMPLISHED WITH DISTINCTION ITS AIM TO FURTHER
INTERNATIONAL SCIENTIFIC COOPERATION AMONG SCIENTISTS
FROM ALLIED COUNTRIES. IN RECENT YEARS, HOWEVER,
NATO SCIENCE PROGRAMS HAVE CONTRACTED AND WE RECOMMEND
REMEDIAL ACTION. END SUMMARY.

1. SINCE ITS ESTABLISHMENT, THE NATO SCIENCE
COMMITTEE HAS EFFECTIVELY AND ECONOMICALLY ACHIEVED
ITS PRIMARY PURPOSE OF PROMOTING INTERNATIONAL
COOPERATION TO DEVELOP BASIC SCIENCE IN THE ALLIED
COUNTRIES. ITS REPUTATION IN SCIENTIFIC CIRCLES
IS EXTREMELY HIGH; THE GROWING SERIES OF HIGH-
QUALITY DOCUMENTS PUBLISHED UNDER ITS PROGRAMS
BEAR WITNESS TO ITS SCOPE AND EXCELLENCE. THE
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SCIENCE COMMITTEE AND ITS PROGRAMS PROVIDE THE
ALLIES WITH A FORUM IN WHICH SCIENTISTS CAN ENGAGE
IN FRANK EXCHANGE AND CONSTRUCTIVE CRITICISM. AT
A MINIMUM, THIS KEEPS ALLIED SCIENTISTS AWARE OF EACH
OTHER'S WORK AND AVOIDS DUPLICATION. BUT MORE IS ACCOM-
PLISHED. OVER 60,000 PERSONS HAVE PARTICIPATED IN
NATO SCIENCE PROGRAMS IN THE PAST TWENTY YEARS. AS A

RESULT, THE CORE OF A TRANS-ATLANTIC SCIENCE COMMUNITY HAS BEEN CREATED, WHICH IS IMPORTANT TO MAINTAIN THE ALLIANCE'S CRUCIAL SCIENTIFIC AND TECHNOLOGICAL LEADS.

2. SCIENTIFIC AND TECHNICAL EXCHANGES BETWEEN THE UNITED STATES AND WESTERN EUROPE UNDER THE AEGIS OF AN INTERNATIONAL FORUM LIKE NATO ARE OF COURSE, QUITE DIFFERENT FROM BILATERAL EXCHANGES. IT MIGHT BE WELL TO SKETCH BRIEFLY THE MAJOR PROGRAMS SPONSORED BY THE NATO SCIENCE COMMITTEE:

- FELLOWSHIPS,
- ADVANCED STUDY INSTITUTES,
- RESEARCH GRANTS,
- SPECIAL PANELS.

3. SCIENCE FELLOWSHIP PROGRAM. 55 PERCENT OF NATO SCIENCE BUDGET IS DEVOTED TO STIMULATING THE EXCHANGE OF POST-GRADUATE POST-DOCTORAL STUDENTS AMONG THE NATIONS OF THE ALLIANCE. OPERATED BY NATIONAL ADMINISTRATORS BUT CENTRALLY MONITORED BY THE NATO SCIENCE DIVISION, THIS PROGRAM FACILITATES EXCHANGES WITH THE ALLIED SCIENTIFIC ESTABLISHMENTS WHICH WOULD BE DIFFICULT TO ARRANGE BILATERALLY. THE FELLOWSHIP PROGRAM IS PARTICULARLY COST-EFFECTIVE FOR THE U.S. BETWEEN 1963-74, 51 PERCENT OF THE EUROPEAN FELLOWS ELECTED TO STUDY IN THE UNITED STATES WHERE THEY WERE INTRODUCED TO AMERICAN METHODOLOGY AND EQUIPMENT. SINCE THESE SCIENTISTS ARE AMONG THE BEST IN THE ALLIANCE, THEY CAN BE

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EXPECTED TO HAVE A CONTINUING INFLUENCE ON SCIENCE POLICY IN THEIR COUNTRIES. IN 1976, 568 FELLOWSHIPS WERE AWARDED, MOST WERE FROM NINE TO TWELVE MONTHS DURATION.

4. ADVANCED STUDY INSTITUTES (21 PERCENT BUDGET) THE INSTITUTES FOCUS ON INVITING SCIENTISTS, PARTICULARLY YOUNG ONES, FOR INTENSIVE TWO-WEEK SESSIONS ON RAPIDLY DEVELOPING SCIENTIFIC FIELDS. THE DELIBERATIONS OF THE INSTITUTES ARE PUBLISHED IN A SERIES THAT GIVES AN AUTHORITATIVE, CURRENT REVIEW OF THE "STATE-OF-THE-ART" IN A WIDE RANGE OF FIELDS.

5. THE RESEARCH GRANTS PROGRAM. (13 PERCENT OF THE BUDGET). THE PROGRAM IS DESIGNED TO STIMULATE CLOSE COLLABORATION BETWEEN GROUPS, IN TWO OR MORE COUNTRIES, THAT ARE DOING RELATED RESEARCH. THE AWARDS ARE INTENDED TO MAXIMIZE THE USE OF AVAILABLE

EXPERTISE TO SOLVE IMPORTANT PROBLEMS MORE
EFFECTIVELY AND ECONOMICALLY. APPLICATIONS ARE
JUDGED BY AN INTERNATIONAL PANEL OF EXPERTS
AND REFEREES WHO EMPHASIZE PROJECTS WHICH
DO NOT FIT EASILY INTO NATIONAL SUPPORT SYSTEMS.
THIS PROGRAM IS PARTICULAR INTEREST TO THE UNITED
STATES AND U.S. PARTICIPATION HAS RISEN DRAMATICALLY
- FROM 3 OUT OF 34 IN 1969 TO 53 OUT OF 181 IN
1976. U.S. SCIENTISTS ARE NOW INVOLVED IN ABOUT 70
PERCENT OF THE PROJECTS IN THE PROGRAM, THOUGH

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NOT ALWAYS AS PRIMARY PARTICIPANTS.

6. SPECIAL PROGRAM PANELS (10 PERCENT OF THE BUDGET)
THE PANELS ARE ESTABLISHED BY THE SCIENCE COMMITTEE
TO FOCUS INTERNATIONAL ATTENTION IN AREAS OF SPECIAL
INTEREST. THE PANELS OF INDIVIDUAL EXPERTS RECOMMEND
AND DEVELOP RESEARCH GRANTS, SYMPOSIA, EXCHANGE
VISITS, AND SPECIAL STUDIES. THE PROGRAMS
GENERALLY LAST FOR A FEW YEARS. WHEN THE PARTICULAR
INTERNATIONAL COLLABORATION THEY ARE MEANT TO FOSTER
IS WELL ESTABLISHED, THEY ARE TERMINATED. PRESENTLY
THERE ARE SIX PANELS: ECO-SCIENCES, MARINE SCIENCES,
AIR-SEA INTERACTION, SYSTEMS SCIENCE, HUMAN
FACTORS AND MATERIALS SCIENCE.

7. IN RESPONSE TO REF A, WE THINK THAT IN THE PAST
FEW YEARS, THERE HAS BEEN A CLEAR
CONTRACTION IN NATO SCIENCE PROGRAMS. SUCH A CONTRACTION
WAS CAUSED BY: (1) INFLATION; (2) HIGHER REAL COSTS,
INCLUDING MORE SOPHISTICATED EQUIPMENT

AND THE GENERAL RISE OF LIVING STANDARDS (ESPECIALLY THE COSTS OF ATTRACTING AND SUPPORTING FIRST-RATE SCIENTISTS); AND, (3) A RISING NUMBER OF APPLICATIONS WHICH HAS LED TO REDUCTIONS IN THE AMOUNT OF INDIVIDUAL GRANTS AND IN CURTAILING THE LENGTH OF INDIVIDUAL

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PROGRAMS. WHILE THERE HAVE BEEN SLIGHT INCREASES IN THE ALLOTMENTS FOR NATO SCIENCE IN RECENT YEARS (E.G. A 6.89) PERCENT INCREASE IN THE 1977 BUDGET), THEY HAVE NOT EVEN KEPT PACE WITH INFLATION.

8. THE CONTRACTION IN NATO PROGRAMS HAS LOST US THE FOLLOWING BENEFITS: (A) OLDER SCIENTISTS ARE BEING FAVORED OVER YOUNGER ONES. BECAUSE OF INSUFFICIENT FUNDS IN THE FELLOWSHIP AND RESEARCH GRANTS PROGRAMS, THERE IS A TENDENCY TO STRETCH FUNDS BY SELECTING OLDER SCIENTISTS ON FIXED SALARIES RATHER THAN YOUNGER ONES WHO HAVE NO SEPARATE INCOMES TO SUPPLEMENT THEIR GRANTS. THIS IS AN UNFORTUNATE TREND BECAUSE YOUNGER SCIENTISTS ARE PROBABLY MORE FLEXIBLE AND RECEPTIVE TO NEW METHODOLOGY AND IDEAS, AND OLDER SCIENTISTS HAVE RELATIVELY SHORTER PERIODS OF RESEARCH ACTIVITY REMAINING TO THEM. (B) THE LENGTH OF STAY BY VISITING SCIENTISTS HAS BEEN SHORTENED. FOR EXAMPLE, IN THE FELLOWSHIP PROGRAM THE NUMBER OF MAN MONTHS SPENT ABROAD IS ABOUT HALF OF THE FIGURE IN THE EARLY 1960'S. THIS MEANS THAT THERE IS LESS CHANCE OF CROSS-FERTILIZATION. SINCE METHODOLOGIES IN EUROPEAN AND AMERICAN UNIVERSITIES AND RESEARCH CENTERS DIFFER, LONGER PERIODS OF EXCHANGE ARE NEEDED TO ASSURE FULL UNDERSTANDING OF DIFFERING APPROACHES AND WORKING HABITS. (C) ANOTHER DRAWBACK OF SHORTENING THE LENGTH OF EXCHANGES IS THAT THERE IS LESS CHANCE TO UNITE THE SCIENTIFIC ELITE OF THE ALLIED COUNTRIES INTO A CLOSELY-KNIT COMMUNITY. LONGER EXCHANGE PERIODS ARE NEEDED IF SCIENTISTS ARE TO UNDERSTAND CULTURAL DIFFERENCES AND ESTABLISH LASTING RELATIONSHIPS. (D) THE REDUCTION IN TIME IN WHICH FOREIGN SCIENTISTS ARE EXPOSED TO U.S. EQUIPMENT COULD RESULT IN LOST COMMERCIAL OPPORTUNITIES. THE INTERNATIONAL STAFF HAS CITED

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EXAMPLES OF FOREIGN SCIENTISTS WHO HAVE FURNISHED

THEIR LABS WITH US HARDWARE AS A RESULT OF FAMILIARITY AND APPRECIATION OF AMERICAN EQUIPMENT WHICH CAME AFTER EXTENDED EXPOSURE DURING NATO INTERNSHIPS. (E) THE INTERNATIONAL STAFF OF THE NATO SCIENCE DIVISION FEARS THAT IF NATO SCIENCE PROGRAMS CONTINUE TO CONTRACT, THERE WILL BE A TEMPTATION TO SUBSTITUTE INTRACONTINENTAL FOR THE FAR MORE EXPENSIVE TRANS-ATLANTIC TIES. THIS WOULD BE PARTICULARLY DETRIMENTAL SINCE A KEY STRENGTH OF THE NATO SCIENCE PROGRAM RESTS ON ITS TRANS-ATLANTIC LINKS

9. AS PREVIOUSLY REPORTED (REF B) WE BELIEVE REMEDIAL ACTION IS NEEDED TO PREVENT FURTHER DEGRADATION OF NATO SCIENCE PROGRAMS. THE SCIENCE COMMITTEE WILL COMMEMORATE ITS TWENTIETH ANNIVERSARY IN SPRING 1978, AND THIS OCCASION GIVES US THE OPPORTUNITY TO INITIATE, OR SUPPORT, EFFORTS TO INCREASE ALLOCATIONS FOR THE NATO SCIENCE PROGRAMS. AT THE APRIL 27 MEETING OF THE NORTH ATLANTIC COUNCIL (REF C) THE ALLIES EXPRESSED CONCERN ABOUT THE CONTRACTION OF NATO SCIENCE PROGRAMS AND WILLINGNESS TO CONSIDER STEPS TO CORRECT THE SITUATION, ESPECIALLY AT THE TIME OF THE TWENTIETH ANNIVERSARY.

10. SPECIFICALLY, CONSIDERATION MIGHT BE GIVEN TO:
A) DOUBLED FUNDING FOR THE RESEARCH GRANTS PROGRAM. SUCH AN INCREASE WOULD ALLOW MORE GRANTS AS WELL AS RAISING THE WORTH OF THE AVERAGE GRANT FROM \$3,000

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TO \$5,000. THE PRESSURE ON THE PROGRAM IS GROWING

ANNUALLY. SINCE AWARDS ARE MADE ONLY IF THE PROPOSED INTERNATIONAL COLLABORATION DOES NOT DUPLICATE WORK BEING DONE ELSEWHERE AND IS ESSENTIAL TO THE PROJECT'S SUCCESS, WE BELIEVE THE PROGRAM SHOULD BE EXPANDED SO THAT A GREATER NUMBER OF FIRST-RATE APPLICANTS CAN BE ACCOMMODATED. THE CHAIRMAN OF THE PROGRAM, DR. MARIO DILULLO, ESTIMATES THAT AT THE PRESENT QUANTITATIVE AND QUALITATIVE LEVEL OF APPLICATION, EVEN DOUBLING THE PROGRAM'S BUDGET WOULD NOT SUFFICE TO PERMIT THE SELECTION COMMITTEE TO GRANT AWARDS TO ALL WORTHY APPLICANTS. (B) INCREASING THE FUNDING FOR THE ADVANCED STUDY INSTITUTE BY 50 PERCENT. DR. KESTER, PROGRAM CHAIRMAN, REPORTED AT THE FEBRUARY SCIENCE COMMITTEE MEETING THAT THE AVERAGE ASI NEEDED ABOUT \$60,000 BUT, IN PRACTICE, THE AMOUNT REQUESTED WAS USUALLY ABOUT \$30,000 SINCE APPLICANTS WERE CLEARLY TOLD THAT THE FINANCIAL RESOURCES AVAILABLE WERE LIMITED. THE PRESSURE ON THIS PROGRAM IS EXPECTED TO GROW. A HIGHER BUDGET WOULD ALLOW THE PROGRAM TO SPONSOR APPROXIMATELY 60 INSTITUTES PER YEAR (CURRENTLY 40-50 INSTITUTES ARE HELD ANNUALLY), IMPROVE THE MIX OF NATIONAL PARTICIPATION, AND INCREASE THE FUNDING FOR THE AVERAGE INSTITUTE TO \$45,000. (C) INCREASING UNCLASSIFIED

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FUNDING FOR THE FELLOWSHIP PROGRAM BY 25 PERCENT SO THAT THE PRESENT TREND OF AWARDING GRANTS TO OLDER SCIENTISTS FOR SHORTER PERIODS CAN BE REVERSED. (D) RECOMMENDING THAT THE SCIENCE COMMITTEE ADDRESS URGENT PROBLEMS FACING ALLIED COUNTRIES, E.G. THE MANAGEMENT OF NATURAL RESOURCES AND THE DEVELOPMENT OF NEW ENERGY SOURCES, WHEN SCIENCE AND TECHNOLOGY CAN MAKE IMPORTANT CONTRIBUTIONS TOWARD SOLVING THEM. (E) EXPLORING THE POSSIBILITY OF ENCOURAGING OTHER GOVERNMENTAL OR PRIVATE AGENCIES TO CONTRIBUTE TO NATO SCIENCE PROGRAMS.

11. THE ABOVE PROPOSALS WOULD INCREASE FUNDING FOR NATO SCIENCE PROGRAMS AT AN OPTIMUM LEVEL. WE HAVE SUGGESTED AN ACROSS-THE-BOARD APPROACH TO INCREASED FUNDING BECAUSE WE REALIZE THAT EACH PROGRAM HAS ITS CONSTITUENCY ON THE SCIENCE COMMITTEE. CERTAIN ALLIES MIGHT BE RELUCTANT TO SUPPORT PROPOSALS THAT SEEMED TO SLIGHT THEIR FAVORITE PROGRAM. IF THE INCREASE PROPOSED WERE APPROVED, THE NATO SCIENCE BUDGET WOULD RISE FROM BF310,000.000 TO APPROXIMATELY BF425,000.000. BASED ON THE CBC SHARING FORMULAR OF 24.2 PERCENT, THE UNITED STATES WOULD INCREASE ITS CONTRIBUTION TO THE NATO SCIENCE BUDGET BY ABOUT BF27,830.0*

PER YEAR FOR A TOTAL OF BF102,850.000

12. AT THE LONDON SUMMIT MEETING OF THE NORTH ATLANTIC COUNCIL, MAY 10, PRESIDENT CARTER STATED U.S. DETERMINATION TO JOIN WITH OUR PARTNERS "IN EVERY WAY TO STRENGTHEN THE ALLIANCE, POLITICALLY, ECONOMICALLY AND MILITARILY." IN OUR VIEW, SUPPORTING BASIC SCIENCE IS CRITICAL TO ALLIED SECURITY SINCE IT HELPS US MAINTAIN OUR TECHNOLOGICAL LEAD. THE NATO SCIENCE PROGRAMS ARE AMONG THE MOST EFFECTIVE MEANS WE HAVE TO ACHIEVE THIS END.

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ACTION REQUESTED: THAT WASHINGTON CAPITALIZE ON THE PRESIDENT'S SUMMIT INITIATIVE BY DEVELOPING A PROPOSAL CALLING ON THE ALLIES TO INCREASE JOINTLY THE FUNDING OF THE NATO SCIENCE COMMITTEE. BENNETT

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